ABSTRACT OF THE DISCLOSURE

An analysis method for a semiconductor device includes measuring electrical characteristics of TEGs fabricated on a semiconductor substrate; classifying the TEGs into a first TEG category where a systematic failure has not occurred and a second TEG category where the systematic failure has occurred based on the electrical characteristics; creating a first comparison Mahalanobis reference space using first parameters of the TEGs in the first TEG category from among parameters of the TEGs expressed as numerical values; calculating a first comparison Mahalanobis distance of the first parameters and a second comparison Mahalanobis distance of second parameters of the TEGs in the second TEG category by using the first comparison Mahalanobis reference space; and comparing the first and second comparison Mahalanobis distances.